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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/823,779	04/14/2004	Kyung-Kyu Kang	8733.1001.00	4667
30827	7590	02/09/2006	EXAMINER	
MCKENNA LONG & ALDRIDGE LLP 1900 K STREET, NW WASHINGTON, DC 20006			CHOWDHURY, TARIFUR RASHID	
			ART UNIT	PAPER NUMBER
			2871	

DATE MAILED: 02/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/823,779	<b>Applicant(s)</b> KANG ET AL.	
	<b>Examiner</b> Tarifur R. Chowdhury	<b>Art Unit</b> 2871	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 November 2005.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>09/21/05</u> | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Specification***

1. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

### ***Claim Objections***

2. Claims 6 and 17 are objected to because of the following informalities: In claims 6 and 7, "the support member" lacks antecedent basis. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

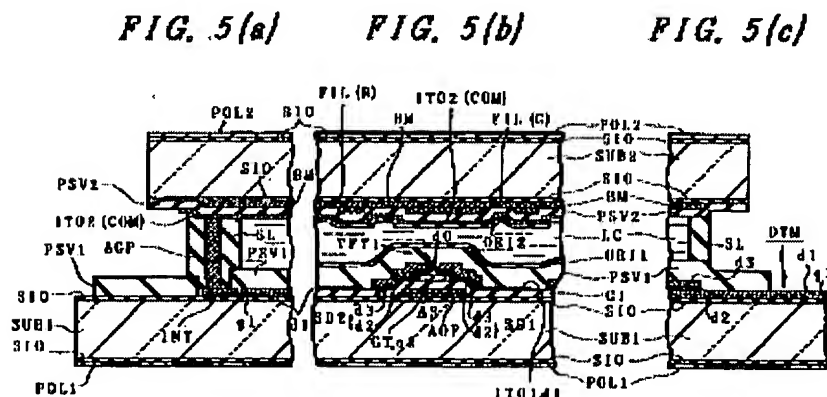
4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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5. Claims 1-5, 10-16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al, (Suzuki), USPAT 5,739,880 in view of Kadota et al., (Kadota), USPAT 5,818,550.

6. Suzuki discloses and shows in Fig. 5(a), a liquid crystal display panel, comprising:

- a black matrix (BM) formed of a resin material (col. 10, lines 1-2), at a predetermined region of a first substrate (SUB2) and at a boundary region of pixels;
- a color filter (FIL) on the black matrix corresponding to the pixels;
- a passivation layer (PSV2) (applicant's overcoat layer) on the first substrate having the black matrix and the color filter;
- a common electrode (COM) made of ITO on the passivation layer (PSV2);
- a seal pattern (SL) on the overcoat layer; and
- a second substrate (SUB1) having a thin film transistor, the second substrate being attached to the first substrate by the seal pattern.



Suzuki differs from the claimed invention because he does not explicitly disclose

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that the thickness of the over coat layer is between approximately about 1.2 micro-meters and about 5 micro-meters.

Kadota discloses a liquid crystal display device including black matrix (8), a color filter (9) on the black matrix and a planarization layer (10) on the color filter (Fig. 2).

Kadota also discloses that the planarization layer is made one of acrylic resin or a polyimide resin and has a thickness of 1.0 to 3.0 micro-meters (overlaps the claimed range) prevents impurities in the color filter from spreading into the liquid crystal and that as a result of formation of the planarization layer substrate structure is obtained with excellent liquid crystal orientation characteristics (col. 5, line 61 – col. 6, line 3).

Kadota is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use an overcoat layer having a thickness in the range of 1.0 – 3.0 micro-meters.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the display panel of Suzuki by employing an overcoat layer with an overcoat layer that has a thickness in the range of 1.0 – 3.0 micro-meters for advantages such as preventing impurities in the color filter from spreading into the liquid crystal and thus obtaining with excellent liquid crystal orientation characteristics.

Accordingly, claims 1, 11 and 16 would have been obvious.

As to claims 2 and 12, Suzuki shows in Figs (5(a)-5(c)) that the black matrix (BM) is extended at least from the seal pattern (SL) formed region to one end of the portion of the first substrate (SUB2).

As to claims 3, 4, 13 and 14, Suzuki discloses that the black matrix is formed one of acrylic, epoxy and polyimide resin containing carbon black or black pigment (col. 10, lines 1-5).

As to claims 5 and 15, Suzuki further discloses that the passivation layer (PSV2) is one of acrylic resin or an epoxy resin (col. 10, lines 51-53).

As to claims 10 and 21, it is clear from Fig. 5(a) that the black matrix partially overlaps the seal member (SL).

**7. Claims 6-9, 17-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki in view of Kadota and further in view Aoya, USPAT 5,481,388.**

8. Suzuki when modified by Kadota differs from the claimed invention because they do not explicitly disclose the limitation such as a glass ball or glass fiber is added to the seal pattern in a weight ratio of about 1% or less.

Aoya discloses a liquid crystal display device wherein glass fiber in a weight ratio of 1% and glass ball are added into the seal pattern to maintain a uniform gap thickness in the liquid crystal cell (abstract). He further discloses the use of glass fiber having a diameter of 7.4 micro-meters and the use of glass balls having a diameter of 7 micro-meters (col. 2, lines 22-23, 38-41). As per applicant's own disclosure when the diameter of the glass ball is between 3.8 to 7.5 micro-meters, approximately 150 to 500 glass balls are distributed in at least one unit area of the seal pattern and when the diameter of the glass fibers is between 3.8 to 7.5 micro-meters, approximately 30-200 glass fibers may be distributed in at least one unit area of the seal pattern (page 23, paragraph 0100-0101).

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Aoya is evidence that ordinary workers in the art would find a reason, suggestion or motivation to add glass ball or glass fiber or both to the seal pattern as the support member.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the liquid crystal display panel of Suzuki when modified by Kadota by adding glass ball or glass fiber as the support member to the seal pattern in a weight ratio of about 1% wherein about 150 or fewer support members are in at least one unit area of the seal pattern to maintain a uniform gap thickness in the liquid crystal display panel.

Accordingly, claims 6-9 and 17-20 would have been obvious.

#### ***Response to Arguments***

9. Applicant's arguments filed on 11/23/05 have been fully considered but they are not persuasive.

In response to applicant's argument that the references are not combinable because in Kadota the planarization layer (overcoat layer) is formed on the TFT substrate whereas in Suzuki the overcoat layer is formed on the color filter substrate, it is respectfully pointed out to applicant that in Kadota the planarization layer is formed on the substrate wherein the TFT as well as the color filter is formed and further the planarization layer prevents impurities in the color filter from spreading into the liquid crystal layer. Further, in Kadota there is also couple of interlayer-insulating films (4, 5) being present on top of the TFT, which can be considered equivalent to the passivation layer (PSV1) of Suzuki. It is also pointed out to applicant that Kadota was used to find a

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teaching for using an overcoat layer having the claimed thickness not to find a teaching as to where to use the overcoat layer such as in the TFT substrate or in the color filter substrate.

Therefore, the rejection was proper and thus maintained.

***Conclusion***

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tarifur R. Chowdhury whose telephone number is (571) 272-2287. The examiner can normally be reached on M-Th (6:30-5:00) Friday Off.



If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TRC  
January 23, 2006



TARIFUR R. CHOWDHURY  
PRIMARY EXAMINER